GENETICS

A PERIODICAL RECORD OF INVESTIGATIONS
BEARING ON HEREDITY AND VARIATION

Founded in 1916

by

GEORGE H. SHULL

with the cooperation of

WILLIAM E. CASTLE
EDWIN G. CONKLIN
CHARLES B. DAVENPORT
BRADLEY M. DAVIS
EDWARD M. EAST
ROLLINS A. EMERSON
HERBERT S. JENNINGS
THOMAS H. MORGAN
RAYMOND PEARL

VOLUME 48—1963

GENETICS VOLUME 48, 1963

EDITORIAL BOARD

DAVID D. PERKINS, *Editor*
Department of Biological Sciences
Stanford University
Stanford, California

JAMES F. CROW
University of Wisconsin

JAY L. LUSH
Iowa State University

CLARENCE P. OLIVER
University of Texas

M. M. RHOADES
Indiana University

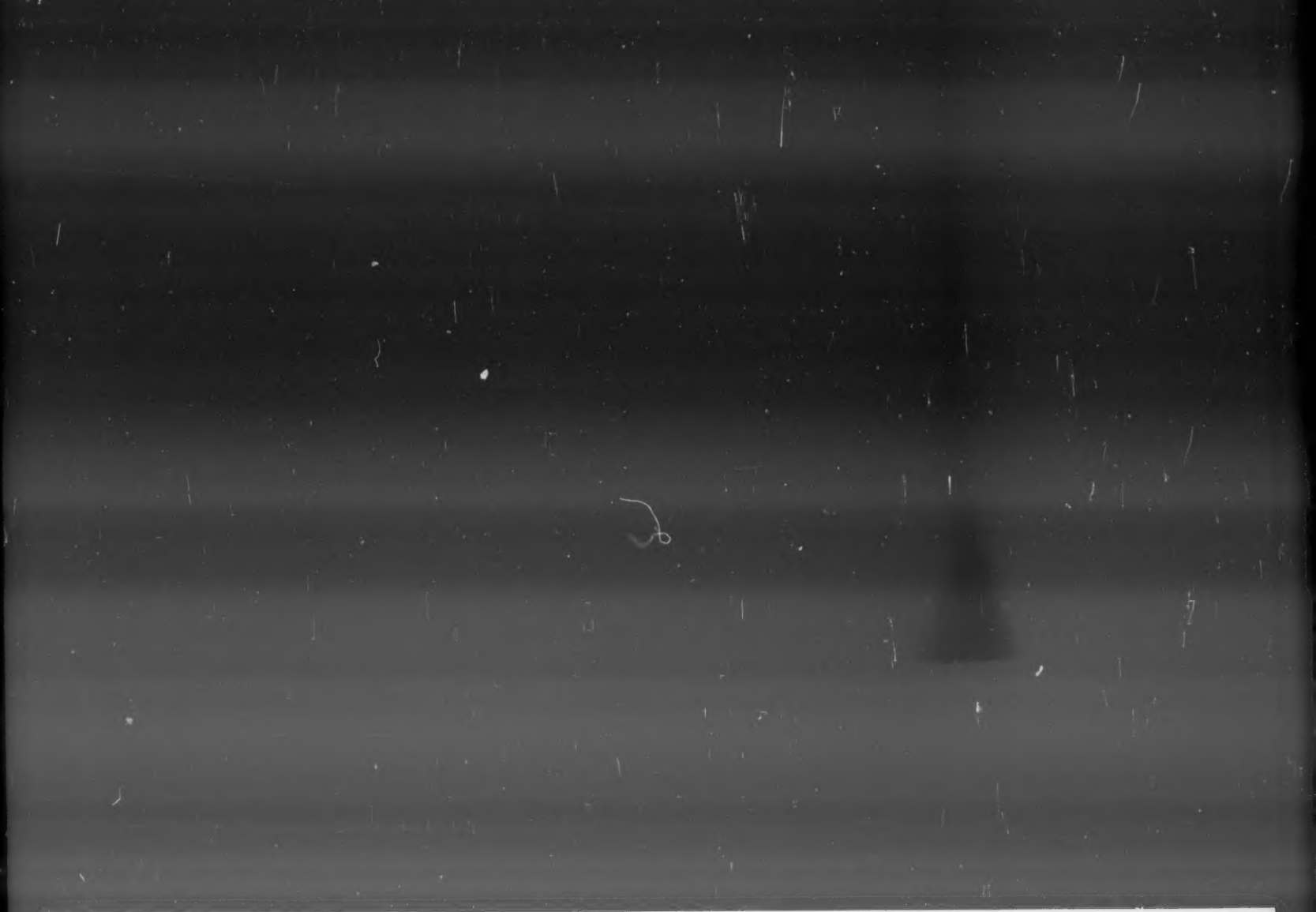
GUNTHER S. STENT
University of California, Berkeley

CURT STERN
University of California, Berkeley

Editorial Assistants, Volume 48: June A. Tatum, Ann Morse Walker

Business Manager, Volume 48: Carolyn Jane Malone

PUBLISHED AT AUSTIN, TEXAS
by the Genetics Society of America



AUTHOR INDEX to Volume 48

January–December 1963

Author's names are listed in strictly alphabetical order, with all prefixes treated as integral parts of the name. (The Table of Contents is also arranged alphabetically by the first author.) Pages 881–918 contain Abstracts; these page numbers are in italics in the Index.

Abbadessa, R., 1345
Abrahamson, S., 1085
Adler, H. I., *881*
Albrecht, A. M., *893*
Allard, R. W., 1389
Allen, M. K., 1065
Allen, S. L., 1635
Altenberg, E., 525
Austin, M. L., *881*

Bacon, D. F., *881*
Barnett, W. E., *717*
Baron, L. S., *907*
Barr, G. R., 1441
Bartke, A., *882*
Barto, E., *889*
Basak, S. L., 329
Bauerle, R. H., *882*
Baumiller, R. C., 263
Beck, S. L., *883*
Bell, A. E., *888*
Bhattacharjee, J. K., *883*, *894*
Biedler, J. L., *893*
Bird, M. A., 1435
Blake, P. R., 217
Borsos, T., *913*
Boylan, W. J., 1567
Bray, D. F., *883*
Brink, R. A., 189
Brockman, H. E., 597
Browning, L. S., 525
Brumbaugh, J. A., *884*
Burdick, A. B., *910*, 1345
Burnet, B., 235, 1683
Buss, E. G., *884*

Cameron, D. R., *905*
Campbell, A., 409
Cannon, G. B., 919, 1201
Capenos, M. R. ,1377
Carlson, E. A., 663, *890*
Caspar, A. L., *885*, *914*
Cattanach, B. M., *884*
Cave, M. D., *885*
Celada, F., 139
Chai, C. K., 1153
Chapin, M., *889*
Chen, C. H., *885*
Chiang, M. S. M., 1153
Cho, S. S., *893*
Clark, A. J., 105
Cockerham, C. C., 177
Coleman, D. L., 1033
Comstock, R. E., *903*, 1567
Corcos, A. F., *886*
Crawford, I. P., *725*
Crow, J. F., 1303
Cudkowicz, G., *886*

Davis, G. T., *884*
Davis, R. H., 1551
Dawson, P. S., *886*
Demerec, M., 997, 1519
de Pinto, S., 803
de Serres, F. J., 351, 597, *717*
Dickerman, R. C., 311
Dobzhansky, Th., 91, 361, 1467
Donnelly, G. M., *887*
Doolittle, D. P., *887*
Dorfman, B., *887*
Doty, P., *891*
Douglas, H. C., 1585
Doyle, G. G., 1011
Drake, J. W., *767*
Driscoll, C. J., 459
Druger, M., *745*
Dubes, G. R., *889*

Ebersold, W. T., *888*
Eddleman, H. L., *888*
Endrizzi, J. E., 1625
Englert, D. C., *888*

Faas, F. H., *889*
Fahey, J. L., *902*
Falkow, S., *907*
Fogel, S., 321, *895*
Foss, H. M., 1659
Foster, M., *889*
Fraser, A., 497
Frost, L. C., *900*
Frye, S. H., *890*

Gallant, J. A., *905*
Garber, E. D., 653
Gardner, E. J., 283
Garner, H. R., *882*
German, J. L., III, *890*
Gerstel, D. U., *677*
Gerstenberg, V. L., 1089
Gillespie, D. H., 997
Gillham, N. W., 431
Goodale, H. D., *890*
Gowen, J. W., *903*, 912
Grell, E. H., 1217
Green, D. M., *891*
Gregory, P. W., *891*

Hall, B. M., *892*
Hansen, A. M., 283
Hanson, W. D., 755
Hartmann-Goldstein, I., *863*
Hawthorne, D. C., 617, *1727*
Hayman, B. I., *755*
Heed, W. B., 217
Helling, R. B., 1377, 1397
Herskowitz, I. H., 307, 703
Herzenberg, L. A. (Mrs.), 711, *892*
Herzenberg, L. A., 711, *892*
Hessler, A. Y., 1107
Himoe, E., 1085
Hiwatashi, K., *892*
Ho, T., *893*
Hollander, W. F., *884*
Horiuchi, S., 157
Horiuchi, T., 157
Hoshino, A., *893*
House, V. L., *893*
Howe, H. B., Jr., 121
Huang, P. C., *894*
Hubby, J. L., 871
Hunter, A. S., 91
Hurst, D. D., 321, *895*
Hutchinson, D. J., *893*

Hwang, Y. L., *894*

Iizuka, M., 273
Ives, P. T., *895*, 981
Iyama, S., *903*

Jaap, R. G., *895*
Jain, H. K., 329
Janick, J., 273
Jensen, N. F., 459
Johnson, L. M., 725
Julian, L. M., *891*

Käfer, E., 27
Kakar, S. N., 957, 967
Kalter, H., *895*
Kelleher, T. M., 57
Kelly, D. G., *889*
Kidwell, J. F., 1593
Kimball, R. F., 581
Kimmel, D. L., Jr., *896*
Kimura, M., 1303
Kindred, B., 621
Kohlmeyer, W., *902*
Kojima, K., 57, 775
Kreig, D. R., 561
Kristjansson, F. K., 1059
Krivshenko, J. D., 1239
Krugellis-MacRae, E., *885*
Kvelland, I., 1559

La Chance, L. E., *896*
Lamb, R. D., *889*
Latterell, R. L., *879*
Lawrence, C. W., 347
Lederberg, J., 529, 1739
Lederberg, E., 1739
Lee, W. R., *897*
Lefevre, G., *897*
Legates, J. E., 177
Lesley, J. W., 943
Lesley, M. M., 943
LeStourgeon, W. L., 341
Levitan, M., *898*, 1231
Levitsky, J. M., *885*
Lewis, D., 1701
Lindegren, C. C., *883*, *894*
Lindegren, G., *894*
Linden, D. B., *898*
Lindsley, D. L., 1533
Löbbecke, E. A., 691, 1313, 1739
Lucas, J. J., *883*
Lucas, T. A., *889*
Luippold, H. E., *916*

MacIntyre, R. J., *898*, 1717
Maguire, M .P., *899*, 1185
Mäkelä, P. H., 423, 1739
Margolin, P., 441
Markusen, A., *899*
Maruyama, T., 1303
Mauer, I., *899*
McDaniel, M. N. C., *907*
McKinnell, R. G., *900*
McNelly, C. A., *900*
McWhirter, K. S., 189
Melton, C. G. , Jr., *901*
Mericle, L. W., *901*
Mericle, R. P., *901*
Mikamo, K., 1411
Miller, O. L., Jr., 1445
Miller, R. H., 177
Miller, W. J., *901*
Misch, M. S., 1635
Mishell, R. I., *902*
Mitchell, M. B., 553
Mittler, S., *902*
Mizobuchi, K., 997
Morgan, W., *902*
Moriwaki, D., 171
Morpurgo, G., 1259
Morrison, B. M., 1635
Morse, M. L., 835
Mortimer, R. K., 617, 1545
Mosig, G., 1195
Moyer, S. E., *903*
Muller, H. J., *903*
Muramatsu, M., 469
Murray, J., 605
Murray, N. E., 1163

Nagel, J., 803
Nanney, D. L., 737, 803
Nash, D. J., *903*
Nell, M., *893*
Nelson, N .M., 1585
Nester, E. W., 529
Noriskog, A. W., *904*, 1141
Norton, I. L., 307
Novick, A., 157

Ogaki, M., *904*
Orias, E., *886*, 1509
Owen, R. D., 9

Pauling, C., *905*
Pavlovsky, O., 91
Paxman, G. J., 1029
Pittman, D., *905*
Poulson, D. F., 841
Prensky, W., 1731

Rahnefeld, G. W., 1567
Rajhathy, T., *906*
Rao, P. N., 1423
Rapp, H. P., *913*
Rauch, H., 1487
Ray, D. T., *906*
Reddy, G. M., *906*
Reeve, S. J., 803
Rendel, J. M., 391
Rick, C. M., 1497
Riemann, J. G., *896*, *907*
Rinehart, R. R., 1673
Roderick, T. H., 205
Roman, H., 255
Rosenberg, L. T., 711
Rosenberg, P., *892*
Ross, J. G., *885*, *910*
Rouhandeh, H., *889*
Russell, L. B., *907*, *917*
Russell, R. L., 1033

Sakaguchi, B., 841
Sandler, L., 1533
Sang, J. H., 235, 1683
Schafer, M., 529
Schaffer, H. E., *775*
Schairer, L. A., *911*
Schiller, R., 1231
Schneider, H., *907*
Schneider, I., *908*
Schwartz, N. M., 1357
Seecof, R. L., *908*
Seiger, M. B., *908*
Seto, F., *909*
Shaver, D. L., 515, *909*
Sherman, F., 255, 375
Shideler, D., *888*
Shleser, R. A., *910*
Shreffler, D. C., 9
Simantel, G. M., *910*
Singh, M., 1567
Singleton, W. R., *885*, *914*
Skaar, P. D., *899*
Smith, B. W., 1265
Smith, L .T., 1141
Snider, P. J., 47
Sokoloff, A., *910*
Soost, R. K., 943
Sorger, G. J., *911*
Soriano, J. D., *911*
Southin, J. L., 663
Sparrow, A. H., *887*, *911*

Sparrow, R. C ., *911*
Spassky, B., 91, 361, 1467
Spalding, J. F., 341
Spieler, R. A., 73
Sperlich, D., 863
Speiss, E. B., 1377
Stadler, D. R., 1323
Stadler, J., *912*
Stahl, F. W., 1659
Stebbins, G. L., *912*
Steffensen, D. M., 1289
Steinitz-Sears, L. M., 483
Stimpfling, J. H., *886*
Stokes, G. W., 1423
Stone, W. S., 1089
Strang, V. G., 341
Strømnaes. Ø., 653, 1559
Sturtevant, A. H., 7
Stutz, H. C., *912*
Suskind, S. R., *917*
Suzuki, D. T., 1605
Symko, S., *906*

Tachibana, D. K., 711
Tanaka, E., *904*
Taub, S. R., 815
Terry, W. D., *913*
Thompson, P. E., 697, *913*
Thwaites, W. M., 1551
Tidwell, T., 361
Ting, Y. C., *913*
Tobari, Y., 171
Tolman, H., *904*
Towe, A. M., 1323
Tyler, W. S., *891*

Van Valen, L., 387
Van Vleck, L. D., 1441
Varma, B., *914*
Vogel, H. J., *881*, *914*
Vogel, R .H., *914*
Volpe, E. P., *914*
von Borstel, R. C., 1313, 1545, 1739

Wallace, B., 91, 633
Ward, C. L., 1435
Wehrli, M., *904*
Weinberg, R., 1397
Weinstein, A., *915*
Weisbrot, D. R., 1121
Welshons, W. J., 139
Whiting, A. R., 491
Whittinghill, M., *915*
Wijewantha, R. T., *912*
Wilkie, D., 1701
Williamson, D. L., *915*
Wilson, F. D., 1089
Wimber, D. E., 1731
Witkin, E. M., *910*
Witschi, E., 1411
Wolff, G. L., 1041
Wolff, S., *916*
Woodiel, F. N., *907*, *917*
Wright, T. R. F., *787*, 1717
Wu, C. K., 1619

Yamamoto, T., 293
Yanofsky, C., 1065
Yerganian, G., *893*, *917*
Yost, M. T., 1487
Yourno, J., *917*

Zimmering, S., 133, 1619

SUBJECT INDEX to Volume 48

January–December 1963

Pages 881–918 contain Abstracts; these page numbers are *italicized* in the Index. Abstracts are indexed here only for organisms. Pages s1–s42 contain Genetics Society of America Proceedings, Directory, etc. which were published as supplementary material in the July issue.

aberrant transmission, Tetrahymena, 737
alkylating agents, 561, 663, 691, 1259, 1357; *see also* individual substances
allelic recombination; *see* gene conversion
allopolyploids, maize-teosinte, 515
  tobacco, 677
2-aminopurine as mutagen, 597, 1065, 1357
Amphiuma, *887*
aneuploidy, 27, 1423, 1625; *see also* trisomics; monosomics; polyploidy
antigens, mouse, 139
  Tetrahymena, 803
Arabidopsis, 483
arabinose genes, *E. coli*, 1397
aromatic biosynthesis, *B. subtilis*, 529
Aspergillus fumigatus, 653
  nidulans, 27, 1259
asynapsis, 1445
autoradiography, of tritium labelled chromosomes, 1289, 1731

Bacillus subtilis, 529, *891*
bacterial sexuality, Salmonella, 423
  E. coli, 105
bacterial viruses; *see* phage
bacteriophage; *see* phage
barley, *901*, *911*, *912*, *916*
beta-galactosidase, *E. coli*, 157, 1357
5-bromouracil, 1065

canalisation, 497, 621
CASTLE, WILLIAM E., biography, 1, s10
cattle, *891*, 1441
centromere pairing and crossing over, 697
Cepaea, genetic basis of traits, 605
chiasmata, relation to crossing over, 329
chicken, *884*, *890*, *895*, *902*, *904*, 1141
Chlamydomonas, 431, *888*
chloramphenicol and UV-mutation, 525
chlorotriethylamine, 1259
chromosome, aberrations, spontaneous, 1231
  autoradiography after H^3 thymidine labelling, 1289, 1731
  behavior in meiosis, 1217, 1445, 1533; *see also* segregation, preferential; nondisjunction; disjunction
  breakage, spontaneous, 1231
  complement, Arabidopsis, 483
  loss, Drosophila, 73
    effect of temperature, 133
    effect of nutrition, 703
clover, 1029
Cochliomyia hominivorax, *896*, *907*, *912*
complement, hemolytic, mouse, 711
complementation, bacteria, 441, 1397
  of allelic mutants in heterokaryons, Neurospora, 351
compound X chromosome, 1533
controlling elements, Salmonella, 441
conversion; *see* gene conversion
corn; *see* maize
correlated response, 391, 1567
corrigenda, 1739
cotton, 1625
CRAFT, W. A., obituary, s10
crossing over, 1163, 1445, 1533
  and centric pairing, 697
  and chiasmata, 329
  interchromosomal effects, 1605
  mitotic, 321, 1259, 1345, 1701
  somatic, 1345, 1701
  see also recombination
crossreactivation following radiation, phage, 1659
cytochrome oxidase, 375, 1435
cytoplasmic inheritance, Chlamydomonas, 431
  genic control in yeast, 375

damage, nuclear nontransmissible, 1313, 1739; *see also* radiation damage
Daucus carota, *892*
deletion, phage, 767
  Salmonella, 997, 1519
  yeast, 1727
Delphinium, 329
density gradient centrifugation, phage, 1195
deoxyribonucleic acid, 529, 1289
  synthesis, premeiotic and meiotic, 255, 1731
  see also transformation
design; *see* experimental design
development, effects of heterozygous X-ray mutants, 263
  correlations following selection, 391
diallel matings, 177
diepoxybutane, 1259
differentiation, of mating types, Paramecium, 815
  of serotypes, Tetrahymena, 803
disjunction, in interchange heterozygotes, 347
  nonrandom, 1533
  see also segregation, preferential
"distributive" pairing, 1217
DNA; *see* deoxyribonucleic acid
dominance, chicken, 1141
dosage effect, of galactose genes, yeast, 1585
  of spelta gene, wheat, 469
"double male" in *E. coli*, 105
drift; *see* genetic drift
Drosophila ananassae, 171
Drosophila busckii, 1239
Drosophila melanogaster, 73, 133, 235, 263, 283, 307, 391, 497, 525, 633, 663, 697, 703, 787, 841, 871, *890*, *893*, *897*, *898*, *902*, *903*, *904*, *908*, *910*, *913*, *915*, 919, 981, 1085,

1201, 1217, 1289, 1345, 1377, 1435, 1533, 1559, 1593, 1605, 1619, 1683, 1717
Drosophila persimilis, 1121
Drosophila polymorpha, 217
Drosophila pseudoobscura, 57, 91, 361, 387, 745, 775, 1089, 1121, 1467
Drosophila robusta, *898*, 1231
Drosophila serrata, 497
Drosophila simulans, 497, 1717
Drosophila subobscura, 863
Drosophila virilis, 311, 1673
Drosophila willistoni, 841

EMS; *see* ethyl-methanesulfonate
enzyme, differences, 725, 787, 1033, 1065, 1435, 1487, 1551, 1717
  hybrid, 1635
  induction, 157, 1397, 1585
  repression, 157
see also under name of individual enzyme
environmental alteration of phenotype, 1683
Errata, 1739
Escherichia coli, 105, 157, 725, 835, *881*, *899*, *905*, *907*, *916*, 1065, 1357, 1397
esterase, 787, 1717
ethyl-methanesulfonate, 561, 1357
ethylene oxide, 1259
Euchlaena; see teosinte
experimental design, 57, 177
extrachromosomal inheritance; *see* cytoplasmic inheritance

fishes; *see* Oryzias
fitness, 91, 919, 1201, 1467
  of heterozygotes, 387
  see also genetic load; viability; heterosis
fluoride treatment and melanotic tumors, Drosophila, 307
fowl; *see* chicken

galactose genes, *E. coli*, 409, 835
  yeast, 1585
Gallus; *see* chicken
gamma radiation, 27, 981, 1659
gene conversion, 255, 321, 957, 1163, 1323
genic balance, 1265
genetic drift, random, 1303
genetic load, 91, 361, 387, 1089, 1303, 1467
GENETICS, history of the Journal, 7
Genetics Society of America, Constitution, s3
  Directory, s12
  Proceedings, s5
Gossypium; *see* cotton
grafting; *see* transplantation
growth, mouse, 1041, 1567

Habrobracon, 491, 1313
hamster, *917*
haploidy, tobacco, 1423
hereditary infection, 841
heritability, 1567
heterosis, 171, 633, 1567
  balanced, 387
heterokaryosis, 121, 351, 653
  see also complementation
Hfr males, *Salmonella abony*, 423
histocompatibility genes, 9, 1153
Homo sapiens; see Man
honey bee, *897*
Hordeum, *906*
hormone induced sex-reversal, 293
host-parasite relations, 841
human; *see* Man
hybrids, interspecific, bacteria, 423
  Drosophila, 1121
  maize-Tripsacum, 1185
  maize-Teosinte, 515
  tomato, 1497

ICR-100 as mutagen, 663
immunogenetics, male antigen in mouse, 139
  mouse serum protein associated with *H-2*, 9
  number of histocompatibility loci, 1153
inbreeding, and aberrant transmissions, Tetrahymena, 737
  and genetic load, *D. pseudoobscura*, 361
    and recombination, 1389
induction; *see* enzyme
infection, hereditary, 841
instructions for contributors, 153
interchange, chromosomal; *see* translocation
interaction, genotype × environment, 1593
interchromosomal effects; *see* crossing over
inversions, *D. busckii*, 1239
  D. melanogaster, 1605
  effect on pairing in Zea allotetraploids, 515
  maize, 1011
isolation, reproductive, 1121

lactose genes, *E. coli*, 157, 1357
lethality, Habrobracon, 1313, 1739
  tomato, 1497
  Mormoniella, 1545
linkage, effect on variance, 755
  groups, bacteria, 105
  of recessive lethals, 1377
  and selection, 1201
lima bean, 1389
load; *see* genetic load

macronuclear differentiation, 815
maize, 189, 515, *885*, *897*, *898*, *899*, *906*, *909*, *913*, *914*, 1011, 1185, 1445
Man; *885*, *890*, *899*
map, genetic, phage, 409, 767, 1107, 1659
  Salmonella, 423, 441, 997
  B. subtilis, 529
  N. tetrasperma, 121
marker genes, Cepaea, 605
  N. tetrasperma, 121
maternal effects, *Drosophila*, 171, 283
  on chromosome breakage, 1231
  on paternal mutation rate, 703
mating types, fungi, 121, 1029, 1727
  protozoa, 815, 1509
  see also self-sterility
maximum likelihood, 1029
medaka; *see* Oryzias
melanotic tumors; *see* tumors
migration of nuclei in Basidiomycetes, 47
milk production, 1441
mitotic recombination; *see* recombination
monosomics, cotton, 1625
Mormoniella, 906, 1545
mottling, 189, 273, 943
mouse, 9, 139, 177, 205, 341, 621, 711, *882*,

883, 884, 886, 887, 892, 893, 895, 902, 903, 907, 912, 913, 1033, 1041, 1153, 1487, 1567
Mus musculus; see mouse
mutation, chemically induced, 561, 597, 663, 691, 717, 1259, 1357; *see also* individual mutagens
dominant lethal, 311, 1545, 1673
modification with gases, 1673
mosaic, 663
and nutrition, 703
in oogenesis, 311, 491
and ploidy, 1545
radiation induced, 263, 311, 341, 491, 525, 581, 633, 703, 981, 1085, 1545, 1673; *see also* individual radiation
rate and fractionation studies with X-rays, 581
in spermatogenesis, 981, 1673
spontaneous, 717, 981
of unstable gene, 717
with tritium labelled thymidine, 1559

Neurospora crassa, 351, 553, 597, 717, *882, 894, 900, 911, 914, 917*, 1163, 1323, 1551
Neurospora tetrasperma, 121
Nicotiana; *see* tobacco
nitrous acid induced mutants, Neurospora, 717
nitric oxide, effect on mutation, 1673
nitrogen mustard, 691
nonchromosomal inheritance; *see* cytoplasmic inheritance
nondisjunction, Aspergillus, 27
Drosophila, 73, 1217, 1619
mouse, 139
Oryzias, 293
yeast, 1701
nuclear migration, 47
nutrition, Drosophila, and eye development, 1683
and induced gross mutation, 703
and melanotic tumors, 235

operon, leucine in Salmonella, 441
ornithine transcarbamylase, 1551
Oryzias, 293
overdominance, 633; *see also* heterosis
oxygen, effect on mutation, 1673

pairing, chromosomes; *see* preferential meiotic pairing; nondisjunction; chromosome behavior
parabiosis, mouse, 1041
Paramecium aurelia, 581, 815, *881*
caudatum, *892*
paramutation, *R*-genes in endosperm of maize, 189
parasexual cycle, *Aspergillus fumigatus*, 653
see also crossing over, mitotic; recombination, mitotic
penetrance, 235, 745, 1683
Peromyscus, *889*
phage, 409, 561, 691, 767, 835, *886*, 1107, 1195, 1659
defective lambda, 409
phosphatase, acid, 1635
photoreversal, 1313
pig, 1059
pleiotropism, chicken, 1141
polar cap cells, Drosophila, 525
polarized recombination, Neurospora, 1163, 1323
Polymorphism, 217, 787, 919, 1239, 1717
polytene chromosomes, 1239, 1289
polyploidy, 469, 1011, 1265, 1585
see also allopolyploidy; aneuploidy
population, experimental, 57, 745, 919, 1201, 1377
large, 1089
marginal, 91
natural, 1089, 1239, 1467
small, 1303
structure, *D. polymorpha*, 217
position effect, 943
preferential meiotic pairing, *D. melanogaster*, 1217
maize, 1011
preferential segregation, 515, 1185, 1217
premutation, 581
probit analysis, 391, 621, 1683
protein differences, 9, 711, 725, 787, 871, 1059, 1065, 1717
see also enzyme
quantitative traits, 1141, 1441
and sex linkage, 775
radiation damage, 263, 341, 1313, 1593
effect of gamma radiation on diploid Aspergillus, 27
effect of X-rays on somatic crossing over, 1345
heritability of damage in mice, 341
see also mutation; name of individual radiation.

Rana pipiens, *896, 900, 901, 914*
random genetic drift, 1303
recombination, *903*
average, per chromosome, 755
mechanism in bacteriophage, 1195, 1659
mitotic, Aspergillus, 27, 653, 1259
Drosophila, 1345
yeast, 255, 321, 1701
nonreciprocal; *see* gene conversion
polarized, 1163, 1323
restrictions, lima bean, 1389
Salmonella abony, 423
unpredicted types produced, Neurospora, 353
variability, 1389
see also crossing over; transduction; transformation
repression; *see* enzyme
reproductive isolation, 1121
resistance, acridine in phage, 1107
8-azaguanine in Aspergillus, 1259
leaf rust, 459
radiation in mouse, 205
streptomycin in Chlamydomonas, 431
respiration deficient mutants, yeast, 375
RNA, *889*, 1683
Rumex, 1265
rye, 347, 459

Saccharomyces; *see* yeast
salivary chromosomes; *see* polytene
Salmonella abony, 423
typhimurium, 441, 997, 1519

Schizophyllum 47, 1029
SCHRADER, FRANZ, obituary, s11
Secale; *see* rye
segregation, in allopolyploids, 515, 677
  preferential, 515, 1185, 1217
selection, 57, 621, 745, 919, 1497
  bristle numbers, Drosophila, 391, 497
  growth, mouse, 1567
  purebred and crossbred schemes, 57
  radiation resistance, mouse, 205
  recombination frequency, lima bean, 1389
  vibrissa number, mouse, 621
"selfer" mutants, Salmonella, 1519
self-sterility, number of alleles estimated, 1029
  see also mating type
serotype differentiation, 803
serum proteins, *see* proteins
sex-chromosomes, mouse, 139
  Oryzias, 293
  Rumex, 1265
  spinach, 273
sex-determination, *E. coli*, 105
  Oryzias, 293
  Rumex, 1265
  Xenopus, 1411
"sex-ratio," 841
sex-reversal, 293, 841, 1411
sexuality, bacterial, Salmonella, 423
  E. coli, 105
Shigella flexneri, 907
snail; *see* Cepaea
sorghum, *885*, *910*
species, related, 1121
  see also hybrids; isolation
spinach, 273
spirochaetes, 841, *915*
suppressors, *E. coli*, 1065, 1357
  phage, 767
  yeast, 617, 967
synapsis, maize, 1011

tandem acrocentric, 1533
teosinte, 515
tetrad analysis, 121, 431, 1323
Tetrahymena, 737, 803, 1509, 1635
tobacco, 677, *905*, 1423
tomato, 943, 1497
transduction, 157, 409, 441, 835, *997*, 1357, 1519
transformation, DNA mediated, linked genes in *B. subtilis*, 529
translocations, and crossing in Drosophila, 697
  Delphinium, 329
  genetic method of detection, 459
  meiotic orientation in rye, 347
  and nutrition of Drosophila, 703
  rye, 347
  spinach, 273
  wheat, rye, 459
transplantation, Drosophila ovaries, 283
  mouse, 1041, 1153
  Xenopus, 1411
transreplication; *see* gene conversion
Tribolium, *883*, *886*, *888*, *910*
trisomics, Arabidopsis, 483
  and synapsis, maize, 1011
Tripsacum, 1185
tritium labelled thymidine, 255, 1289, 1559, 1731
Triturus, 1731
tryptophan synthetase, *E. coli*, 725, 1065
tumors, Drosophila, melanotic, 235, 307
  tumorous head, 283
turkey, *884*

ultraviolet radiation, 321, 525, 1313, 1357, 1701, 1739
unstable genes, Neurospora, 717
UV; *see* ultraviolet radiation
variability, bristle numbers, Drosophila, 497
  new X-ray mutations, 633
variance, genetic, additive, 755
  heritability, 1567
  nonadditive, 177
variegation, 189, 943
viability, Drosophila, 387, 1467
  of new mutations, 633
  of structural heterozygotes, 863

wheat, 459, 469

Xenopus laevis, 1411
X chromosomes, 1533; *see also* chromosome; sex-chromosomes; sex-determination
X-radiation, 205, 263, 273, 311, 341, 491, 581, 633, 703, 1085, 1345, 1545, 1593, 1619, 1673
X-Y interchange, 1619

yeast, 255, 321, 375, 617, *883*, *887*, *894*, *895*, *905*, 957, 967, 1585, 1701, 1727

Zea mays; see maize